

## **Report for 2002KS1B: High Plains Aquifer Information Network**

There are no reported publications resulting from this project.

Report Follows

**HiPLAIN – The High Plains Aquifer Information Network ([www.hiplain.org](http://www.hiplain.org))**  
**Final Report for Year 3 (March 1, 2004 – February 28, 2005)**

**Investigators and Affiliations**

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**Descriptors**

High Plains aquifer, Ogallala aquifer, ground water, irrigation, Kansas, Colorado, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, Wyoming, world wide web

**Additional Funding**

Kansas Water Office - \$9,000 for fiscal year 2006

## **Problem and Research Objectives**

The High Plains aquifer spans nearly 111 million acres of the Great Plains. Many communities and agricultural producers rely on the aquifer for groundwater to thrive in the semi-arid region. Uses of the aquifer include municipal, industrial, recreational, and intense agricultural production. Severe water-level declines have occurred in portions of the aquifer due to high-volume pumping of groundwater. Understanding the importance of the aquifer and ensuring its future are critical.

One key to understanding the High Plains aquifer is to have an effective method of sharing information that is practical and applicable to all users of the aquifer. Residential and agricultural users, researchers, consultants, and public policy makers need to have a common source of information to help them acquire the information and knowledge they need to protect this vital resource.

The Internet is an effective method of disseminating data and information. The High Plains Aquifer Information Network (HIPLAIN) establishes an informational site to serve all users of the High Plains aquifer. HIPLAIN focuses on providing information on many aquifer-based issues, including education, agriculture, environmental topics, technical data, and links to organizations that are associated with the aquifer.

HIPLAIN is a one-stop source for a broad group of High Plains aquifer users. By consolidating the available information into one website, individuals are able to find answers and utilize resources with a click of their mouse. HIPLAIN provides opportunities for all potential users to increase their understanding of the region's water resources and provide information to enable better personal and public decisions on water conservation, development, and management.

## **Description of Methods**

- HIPLAIN ([www.hiplain.org](http://www.hiplain.org)) was developed in 2002/03 to be a central location for High Plains aquifer resources. Informational categories include About the Aquifer, Agriculture, Education, Environment, Organizations, Pictures, and Technical.
- During the March 2004-February 2005 a major improvement to the website was the addition of a custom designed search engine to permit rapid retrieval of information from the site.
- The site was redesigned and rebuilt to run as an ORACLE database using ColdFusion programming language, making maintenance and updates more efficient, improving site search capabilities, and improving user-friendliness.
- A clickable map was developed for obtaining information housed in the HIPLAIN database on a statewide and regional basis.
- Collaboration with the Ogallala Aquifer Institute and other High Plains states occurred to increase access to public data links;
- Links to the Kansas water-quality data from USGS and the USEPA Storet databases were provided through the site.

- Attempts were made to coordinate work on the HIPLAIN website with the Ogallala Aquifer Initiative consortium of Texas organizations and Kansas State University but no headway was made on this issue

## **Work Accomplished**

Year 3 accomplishments include the following:

- Incorporation of site information into an ORACLE database, improving the efficiency of site maintenance.
- Use of ColdFusion programming language to query the database and generate pages on dynamically.
- Development of a custom search engine for rapid retrieval of information from the ORACLE database.
- Development of clickable map for quick user-friendly access to information on statewide and/or regional basis.
- Updating links to other states for data and information sources.
- Easier access to Kansas water-quality data from USGS and EPA Storet databases;
- Links to High Plains aquifer recharge estimates database developed by Sophocleous (2004).
- Increased links to Agricultural Extension publications that are pertinent to High Plains aquifer issues.

Activities still underway include the following:

- Access to the most up-to-date and newly developed database front ends and data-analysis tools from the KGS website and elsewhere.
- Continued search and posting of relevant links and maintenance.
- Procedures for future data and information dissemination through coordination with the Kansas Water Office, Groundwater Management Districts (GMDs) and other educational and governmental groups.
- Access to legal issues concerning water rights, enforcement, and water-management programs.
- Continued acquisition of additional links to data and information from the other seven states that use the High Plains aquifer.

As the project ends its third year, several enhancements were finalized. Keeping with the idea of increasing user-friendliness, a new layout was designed that incorporated drop-down menus and a clickable map, allowing users to find their section of interest with fewer clicks of their mouse. To reduce the length of the pages, each subcategory of the main sections has a dedicated page, with links back to the main topics or subcategories. This style of website improved visibility of search engines and increase the overall utility of the site.

In addition to providing and improving easy access to Kansas High Plains aquifer information, third-year activities included further acquisition and development of links with all eight High

Plains states concerning water policies and issues, socioeconomic issues, technical information, and access to available datasets for use by the public.

### **References**

Sophocleous, M.A., 2004. Ground-water recharge and water budgets of the Kansas High Plains and related aquifers. Kansas Geological Survey Bulletin 249, 102 p.

### **Publications and Presentations**

Poster session at Water and the Future of Kansas, March 2005.

Groundwater workshop for high school science teachers, July 2004.

Poster presentation at 3i Show, April 2004.

### **Information Transfer**

Access to databases concerning water information, including aquifer water levels, water well construction, and water quality data via the USEPA Storet and USGS NWIS water-quality databases.

Brochures announcing the site were distributed at the Water and the Future of Kansas conferences in 2004 and 2005, and the 3i Show (irrigation, implement, and industry) in April 2005.

A presentation of site was given to junior high and high school teachers during the Ground-water short course in July 2004. Teachers gave feedback on site and comments concerning usefulness for curricula exercises.

Links were added to many organizations, both in Kansas and other states that utilize the aquifer and provide data and services to the public.

### **Students Supported**

None